Dr. Anne Kinney
Director
Universe Division, Science Mission Directorate
National Aeronautics and Space Administration
Washington, DC 20546

Dear Colleague:

The Terrestrial Planet Finder (TPF) is the cornerstone in NASA's quest for signs of life outside the solar system. The core scientific objectives of TPF are: (1) to search for and directly detect terrestrial planets that may exist in the habitable zones of nearby stars, and (2) to characterize the atmospheres of those planets in search of signatures of biological activity. NASA's current plans are to fly two missions, TPF-C (a visible light coronagraph) in the middle of next decade followed by TPF-I (a precision formation flying mid-IR interferometer) several years latter.

With this Letter NASA and the Terrestrial Planet Finder (TPF) project, are seeking representatives from the astronomical community to serve on: a) the TPF-C Science and Technology Definition Team (STDT), or b) the TPF-I Science Working Group (SWG). Appointments will be made by NASA Headquarters with the goal to provide the critical skills to achieve the objectives of each body listed below. The TPF-C STDT and TPF-I SWG will report to the TPF-C and TPF-I projects respectively at Jet Propulsion Laboratory and to the Universe Division at NASA Headquarters. Limited financial support will be available to cover travel costs to STDT or SWG meetings (2-3 per year) or other travel required for carrying out assigned duties.

TPF-C STDT

Members of the TPF-C STDT will work in collaboration with the TPF-C Project, NASA Headquarters, and the astronomical community to help develop the mission concept during the pre-formulation phase (pre-Phase A) of TPF-C. The STDT will help to mature the TPF-C vision from an architecture concept into a complete mission concept. As representatives of the broad astronomical community, the TPF-C STDT is expected to act as the science conscience of the project, ensuring that the broad TPF-C science goals are worthy of the mission and that the mission will be able to fulfill them. The STDT product, a joint report with the TPF-C project office, is coordinated with the science community using the science advisory bodies, and will contain the following information as a minimum:

- Science objectives,
- Operations concepts,
- Mission design architectures,
- Spacecraft concepts,
- Cost, schedule, and risk, and,
- Identification of required new technology.

This report will be delivered to NASA Headquarters. The STDT report will form the basis for the NASA announcement of opportunity (AO) for TPF-C mission instruments and the documentation required for NASA approval for TPF-C to proceed.

It is expected that roughly 15-20 individuals will be appointed to the TPF-C STDT, and that the duration of the appointment will be approximately 1 year. The STDT will be dissolved before the issuance of the NASA AO for TPF-C mission instruments. Former members of the STDT may propose without prejudice in response to the AO. Once the AO selections are made, a TPF-C Science Team will be formed for the remaining prime lifecycle of the project. The STDT will need to be a balanced committee including observers, theorists, instrument builders, and technologists reflecting both the nature of the project and the diverse scientific goals and capabilities of the observatory. Scientists with interests in astrobiology and planetary research as well as astronomers with interests in general astrophysics investigations potentially accessible with TPF-C are particularly encouraged to apply.

STDT members are expected to have a strong record of active research and participation in astronomical endeavors. We seek committee members with demonstrated leadership in a field of astrophysics, or in technical developments leading to new discoveries, with the ability to represent the astronomy community's interest in TPF-C. Further details of the application and selection process may be found at the following url: http://spacescience.nasa.gov/admin/divisions/sz/index.htm, and http://planetquest.jpl.nasa.gov/TPF.

TPF-I SWG

The TPF-I SWG will work closely with the TPF project to develop science rationale for the mid-IR observing program, help guide the appropriate technology, and interface with their counterparts on the ESA TE-SAT (Darwin project). As representatives of the broad astronomical community, the TPF-I SWG is expected to act as the science conscience of the project, ensuring that the broad TPF-I science goals are worthy of the mission and that the mission will be able to fulfill them. Specific tasks of the TPF-I SWG may include, but are not limited to:

1. Refining, as necessary, TPF-I science goals, as embodied in the Design Reference Mission (DRM), and assessing the impact of altering mission design parameters (orbit, mission duration, telescope size, instrument complement, etc.) on these science goals.
2. Assessing design concepts, technology and implementation plans relative to the overall scientific performance of the mission.
3. Assisting NASA in explaining the goals of TPF-I to the larger astronomy community and in preparing materials for review by external scientific advisory groups and oversight committees.
4. The TPF-I SWG will produce a Science Requirements document. This document will include the prioritized science objectives and requirements for the planet finding and characterization and general astrophysics aspects of the TPF-I mission.

It is expected that 8-12 astronomers and technologists will be appointed to the TPF-I SWG and that the duration of the appointment will be approximately 3 years. The TPF-I project seeks to form a balanced committee including observers, theorists, interferometer experts, and technologists. Scientists with interests in astrobiology, planetary research, and the potential application of high angular resolution mapping in the mid-IR to a broad range of astrophysical problems are particularly encouraged to apply.

TPF-I SWG members are expected to have a strong record of active research and participation in astronomical endeavors. We seek committee members with demonstrated leadership in a field of astrophysics, or in technical developments leading to new discoveries, with the ability to represent the astronomy community's interest in TPF-I. Further details of the application and selection process may be found at the following url: http://spacescience.nasa.gov/admin/divisions/sz/index.htm, and http://planetquest.jpl.nasa.gov/TPF.

Astronomers and technologists interested in applying for either the TPF-C STDT or the TPF-I SWG should respond with a short (approximately 2 page) letter and brief (approximately 1 page) curriculum vitae. To aid in selecting balanced and broadly representative teams, this letter should clearly state which team the applicant is applying for, provide a brief outline of experience the applicant would bring to the STDT or SWG and should identify aspects of the TPF-C or TPF-I science mission and/or technology of particular interest to the applicant. To receive full consideration, responses must be received at NASA HQ by December 1, 2004. Applications shall be e-mailed (pdf, Word, or ASCII) to the TPF program scientist Zlatan Tsvetanov (zlatan.tsvetanov@nasa.gov).

Sincerely yours,

Dr. Anne Kinney
Director, Universe Division
Science Mission Directorate